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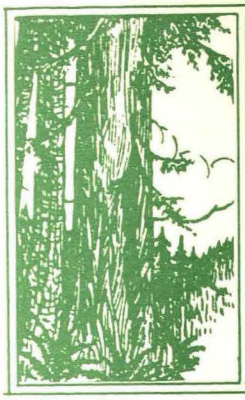

FOREST RESEARCH NOTES

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EXPERIMENT STATION *

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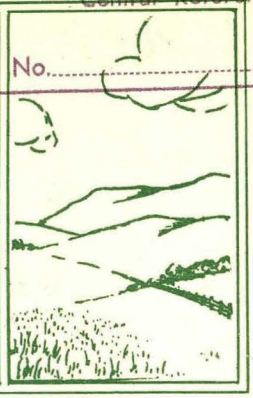

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CONTROL OF SPROUTING OF TANOAK AND MADRONE STUMPS 1/

by

G. H. Schubert

In part of the high-site-quality pine and fir types of California, stand improvement cuttings are made especially difficult by the sprouting habit of tanoak (Lithocarpus densiflora Hook. and Arn.) and madrone (Arbutus menziesii Pursh.). The stumps of these species sprout so vigorously that release of the favored crop trees is only temporary. How to control this sprouting on areas dedicated to production of conifers was the object of a small test on the Challenge Experimental Forest.

Treatment

Ten trees of each species were felled on five dates, first in late June 1947, then in July, August, and October, and in early June, 1948. Stump heights were 12 inches or lower. Stump diameter of madrones ranged from 3.6 inches to 10.4 inches, and of tanoaks from 3.8 inches to 11.9 inches. On each date half of the stumps were treated with 2,4-D; the range of diameters was about equally represented in treated and untreated stumps.

Treated stumps were drenched with a one percent water solution of the isopropyl ester of 2,4-D. Stumps smaller than 6 inches in diameter received $\frac{1}{2}$ pint of solution; those larger received 1 pint. This dosage, purely arbitrary, gave good drenching of all stumps. The solution was applied immediately after the tree was felled.

1/ This study was conducted under the direction of Duncan Dunning, in charge of Forest Management Research.

* MAINTAINED AT BERKELEY, CALIFORNIA, IN COOPERATION WITH THE UNIVERSITY OF CALIFORNIA.
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Results

Treatment with 2,4-D prevented sprouting of some stumps and reduced the number of sprouts per stump on the others. The proportions of treated and untreated stumps bearing sprouts were:

	Treated	Untreated
Madrone	28 percent	96 percent
Tanoak	64 percent	100 percent

These data show that treatment was more effective on madrone than on tanoak. The stumps that sprouted bore the following numbers of sprouts:

	Treated	Untreated
Madrone	6	19
Tanoak	19	45

Treatment thus reduced the sprouting capacity of the stumps if the stumps were not completely killed. The height of tallest sprouts was not appreciably different between the treated and untreated stumps.

Season of treatment did not greatly affect control of sprouting. The data suggest that treatment in midsummer may be best to prevent sprouting of madrone, and late fall or early spring treatment may be best for tanoak. However, the difference in control between the species for one season or another is not definitely proven. Obviously, season of cutting did not affect sprouting of the untreated stumps: practically all sprouted.

There was no correlation between diameter of stump and lack of sprouting or number of sprouts per stump. This lack of relationship suggests that the two levels of dosage may have been in excess of the amount required.

One practical application of these results is as a follow-up measure when cutting fuel wood. Madrone, in particular, often is cut for campwood by stand-by fire crews or other crews. Where release of pines is possible cutting for fuel wood followed by this simple treatment of the stumps will result in stand improvement.